

quantitative and qualitative aspects of apyrase enzyme activity. The leg muscle has 2-3 × as much apyrase activity but lacks readily visible amounts of the reddish muscle pigments and has only 60% as much protein nitrogen. Probably the flight muscles are inactivated by cold at a higher temperature than leg muscles are in this species. Clearly, these muscle sets are different from one another, and, equally clearly, the relative enzyme activity rates in this bug do not parallel those reported by Gilmour and Calaby for desert locusts.

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A Preliminary Report on the Chilopoda of Missouri

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The present discussion is based upon a collection of centipedes captured in St. Louis County, Missouri, chiefly in a locality that has informally been designated "Ranken"¹ by local naturalists.

These specimens were generously placed in my hands by Dr. E. P. Meiners, a local physician and naturalist whose enthusiasm for natural history in general and whose large, beautifully or-

¹ Ranken, a tract of land, part of which is occupied today by the Beaumont Boy Scout Reservation, still reflects here and there an almost primeval Ozarkian nature, even though it is already experiencing the effects of expanding civilization. Situated on U. S. Highway 66, it is some twenty-three miles west of St. Louis, about five miles west of Valley Park and two miles east of Eureka.

dered insect collection and extensive entomological library are well known to many persons in this area. I am deeply indebted to Dr. Meiners for the opportunity of being able to study his carefully preserved centipede collection.

GEOPHILOMORPHA

Geophilidae

Geophilus vittatus (Rafinesque). This ubiquitous species, formerly known as *Geophilus rubens* Say,² has been reported to occur from Massachusetts west to Nebraska and eastern Texas, and south to the Gulf states. A single male with 51 pairs of legs was taken at Ranken.

Geophilus mordax Meinert [*sensu stricto*]. Three males each with 53 pairs of legs; two females with 55, one female with 57 pairs of legs. All six specimens possess heavily sclerotized, consolidated paxilli and sacculi, and the ventral coxopleural pores of all are concentrated under or adjacent to the ultimate pedal sternite. In addition, the coxopleuron of each shows the peculiar pigmented thickening which represents a closed ventro-posterior pore. The significance of these characters in the light of the true identify of *mordax* has recently been discussed elsewhere.³

Arenophilus watsingus Chamberlin. In Meiners' series of eleven specimens the following leg-pair distribution was recorded. Females: 57 pairs, 3; 59 pairs, 2; 61 pairs, 2. Males: 55 pairs, 1; 57 pairs, 2; 59 pairs, 1. The species reportedly ranges from Virginia, Kentucky, and Missouri south to the Gulf states. Although the closely-related *bipuncticeps* was not collected at Ranken by Dr. Meiners, one specimen was taken at Glencoe, St. Louis county, by Brother Charles Roe of the Christian Brothers College.

Pachymerium ferrugineum (C. L. Koch). This well-known European form is common to many localities in this country into which it has apparently been introduced. Both in Europe and in the United States it seems to prefer moist, sandy

² CRABILL, Florida Entomologist, XXXVI (2), p. 78, (1953).

³ CRABILL, Proc. Ent. Soc. Washington, LVI, pp. 182-187, (1954).

situations in the vicinity of water. The Ranken specimens agree in all particulars with New York State and German representatives.

Arctogeophilus fulvus (Wood). A single female with 55 pairs of legs. This long neglected, handsome centipede is now known from Philadelphia, Pennsylvania, from Big Knob Hill, and Crab Tree Corners, Virginia, and from the present locality. Dr. Meiners' only female has 55 pairs of legs and compares favorably with those captured in Virginia by R. L. Hoffman.

Dignathodontidae

Strigamia bidens Wood. A male with 69 and a female with 71 pairs of legs were captured at Ranken; both compare favorably with eastern specimens. The species is now believed to range from eastern Pennsylvania south to northern Georgia and Louisiana, and west to eastern Missouri.

Strigamia bothriopa Wood. One female with 49 pairs of legs. Because this species has been confused with *S. fulva* Sager for many years, one cannot rely upon previously published distributional records. However, in the light of specimens personally examined, I should guess *bothriopa* to occur throughout the midwest and east perhaps as far south as the Gulf states.

Schendylidae

Escaryus missouriensis Chamberlin. This striking form is now represented by three specimens: a male holotype from St. Louis county, Missouri (4.3 miles northwest of Glencoe), with 59 pairs of legs; a female from Dallan's Spring Cave, Indiana, with 57 pairs of legs; and the present male from Ranken, with 59 pairs of legs. The most recently discovered male, 73 mm. long, is thus larger than either of the two previously known specimens. Also its controversial telopodital lappets are quite long. In general it is very similar to the Indiana female recently described.⁴

⁴ CRABILL, JOURNAL New York Ent. Soc., LXI, p. 96, (1953).

SCOLOPENDROMORPHIA

Scolopendridae

Cormocephalus (Hemiscolopendra) punctiventris (Newport). This species appears to range from coastal Massachusetts south to the Gulf states and north to southeastern Nebraska. I also have seen specimens from Arizona, its westernmost outpost so far as I am aware. Ranken yielded one specimen.

Cryptopidae

Cryptops hortensis Leach. The common European *hortensis* has only recently been shown to inhabit parts of the United States into which it has probably been introduced. It is now known only from Ithaca and the Bronx, New York, from Salt Lake City, Utah, and from the present area. One specimen was captured.

Theatops spinicaudus (Wood). Western Pennsylvania south to the Gulf coast, west to Missouri and Arkansas. No specimens referable to Say's *posticus* were taken at Ranken. The Say species seems to be more prevalent than *spinicaudus* in the southeastern United States.

Scolopocryptops rubiginosus Koch [formerly *Otocryptops*⁵]. These specimens are provisionally referred to the Koch species, but complete assurance of their true identity must await the evidence of further extensive collecting in this and in neighboring areas to the northwest. Whereas typical *rubiginosus* specimens, seen from Kansas, Nebraska, Iowa, and Korea, all possess strong, complete paramedian sutures at least on tergites (4-6) through 20, the Ranken forms show marked variation particularly in this character. Some have complete though weak paramedian sutures on tergites 6 through 17, and others have many or even all of the paramedian sutures very narrowly broken in the middle. These specimens could not be confused with typical eastern representatives of the closely related *sexspinosus*, in which I have never found more than extremely short sutural fragments anteriorly and posteriorly on any given

⁵ CRABILL, Ent. News, LXIV, p. 96, (1953).

tergite. Thus, the Ranken specimens seem to occupy an intermediate position between the typically eastern *sexspinosus* and the northcentral *rubiginosus*. (Each has been reported from eastern Asia.) This evidence seems to me to be sufficient at least to raise the question of whether *rubiginosus* and *sexspinosus* are geographical races (subspecies) of one far-flung polytypic species. And if the future proves this to be the case, then our ideas concerning the constitution of the entire genus will stand in need of review.

LITHOBIOMORPHA

Ethopolyinae

Bothropolys multidentatus (Newport). East of the Mississippi *multidentatus* is probably the most widespread endemic lithobiid. Particularly common under tree bark, where conditions are unvaryingly on the moist side, this form is evidently not especially inhibited in its dispersal by limited temperature variations. It does definitely seem to be sensitive to variations in environmental moisture. Thus I have found it to be as common in Ithaca, New York, as in Virginia or the Carolinas. The Missouri specimens that I have seen (from Jefferson City and St. Louis county) do not appear to differ significantly from the thousands of eastern representatives that I have examined.

Lithobiinae

Sozibius proridens (Bollman). The original orthography of the trivial name seems to be *proridens* rather than *providens* as cited in 1922 by Chamberlin.⁶ The species is known to range from extreme southeastern New York State south and west to Mississippi, Arkansas, and Missouri. It is the least common lithobiid in the Ranken collection.

Pokabius bilabiatus verdescens (Chamberlin). The few Ranken specimens are provisionally referred to the Chamberlin subspecies. Although all lack spur VTrM on the 13th leg, an unstable VTrM has been found in several other North Ameri-

⁶ CHAMBERLIN, Bull. Mus. Comp. Zool. Harv., LVII, p. 268, (1922).

can lithobiids. In fact, in certain species this type of variability may be seen to occur within a relatively small population. In the original description Chamberlin says ⁷ that the two subspecies "occur in the same general region." It is thus not unlikely that the criteria used for distinguishing these subspecies are actually manifestations of a highly variable species and that the two forms are non-genetically fixed variants. *P. bilabiatus* is presently known to range from Ohio west to Nebraska and Kansas, south to Louisiana, and north to Minnesota.

Neolithobius voracior (Chamberlin). This is by far the commonest lithobiid taken at Ranken and in nearby St. Louis county localities. It is evidently also very prevalent at Jefferson City from which I have seen many specimens. Elsewhere *voracior* is known from Illinois and Mississippi.

Nadabius iowensis (Meinert). This widespread, typically midwestern form reportedly ranges from Idaho east to Ohio and south to Tennessee. It is very common at Ranken.

Nadabius ameles Chamberlin. Elsewhere the species has been reported from Mineral Springs, Indiana (type locality), and from Chicago, Illinois. I have found specimens that seem to agree with the original description from several localities in Connecticut and most recently from eastern Missouri.

SCUTIGEROMORPHA

Scutigeridae

Scutigera coleoptrata (Linné). One large female was captured outside at Ranken. The common "house centipede," while rarely encountered out of doors in the northeast, has been found to forsake human dwellings commonly in warmer parts of the country.

⁷ CHAMBERLIN, Bull. Mus. Comp. Zool. Harvard, LVII, p. 353, (1922).